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ABSTRACT

The first day of the National Commission on New Technological Uses of Copyrighted Works' (CONTU) third meeting was spent at IBM processing headquarters, where commissioners learned about the history and terminology of computers, information storage methods, computer capabilities, computers and copyrights, future trends, and costs. On the second day they discussed an Australian copyright case in which the court decided that a university was responsibile for infringements involving self-service copiers. This led to discussions of possible coding of all works to identify what has been copied, licensing schemes, and the costs of such record keeping. Statistics on the size and markets of the publishing industry, and on the number and expenditures of libraries were presented. Future meetings, including possible contributions from the American Society for Information Science, were discussed. (LS)

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ED127937

NATIONAL COMMISSION

ON

NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS

Meeting No. 3

December 18-19, 1975

IBM Data Processing Headquarters
1133 Westchester Avenue
White Plains, New York

and

Association of the Bar of the City of New York
42 West 44th Street
New York City

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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IR003 900

Commissioners Present:

Judge Fuld, Chairman

Mr. Nimmer, Vice Chairman

Mr. Dix

Mr. Hersey

Ms. Karpatkin

Mr. Lacy

Mr. Miller

Mr. Perle

Mr. Sarbin

Mr. Wedgeworth

Ms. Wilcox

Others Present:

Mr. Hamilton, Deputy Register of Copyrights

Mr. Levine, Executive Director, CONTU

Mrs. Morrisey, Executive Assistant to the Librarian of Congress

Mr. Frase, Assistant Executive Director, CONTU

AGENDA

December 18, 1975 (9:00 a.m. - 6:00 p.m.)

IBM Data Processing Headquarters

Presentation of computer concepts

Tour of computer installation

Technological forecast

New York University Law Center

The Jean Geiringer Lecture on International Copyright presented by David Catterns, Legal Research Officer, Australian Copyright Council

December 19, 1975 (9:30 a.m. - 4:00 p.m.)

Discussion with David Catterns, Australian Copyright Council

Briefing possibilities, Joshua Smith, Executive Director, American Society for Information Science

Future program planning for the Commission

Economic statistics in publishing industry, libraries and authorship

Meeting of planning committee

PURPOSE

The agenda of this meeting was developed in response to the Commissioners' request for some basic instruction and education in the technology involved in the areas of their study. Other technical briefings and presentations by a variety of specialists in information production and dissemination activities are contemplated. International Business Machines, Inc. offered its facilities for this initial briefing in response to the Commission's request for information about present and anticipated computer capabilities as related to the area of the Commission's responsibility.

SUMMARY OF THE MEETING

December 18, 1975

1. Judge Fuld called the meeting to order and turned over the chair to Joseph Taphorn, IBM copyright attorney, who welcomed the Commissioners and opened the presentation of information about machines which can "accept input, store it, organize and rearrange it, and produce an output that does not look like any other product." The multiple operations which the computer makes possible can raise copyright questions that go beyond "fair use"; for example, when the computer produces a unique product based on input data, who is the author of that product?

IBM has a multi-faceted view of the over-all situation. It is concerned with the selling of computers, the marketing of computer programs, production and selling of copiers, and the production of textbooks. The company has some concern about teachers reproducing its material -- a concern that may relate to CONTU's mission. Library networking and satellite transmission are also of mutual concern.

2. R. R. Stanley then reviewed some basic computer terms and outlined briefly the historical development of the computer.

"Data processing" can be defined as the recording and handling of information by means of mechanical or electronic equipment; its meaning is broader than the use of a computer.

The concepts of data processing have not changed over thousands of years; it is the processes that have altered. Important steps in data processing development include:

1942 - Pascal's development in France of a machine that was basically an adding machine

1671 - Leibnitz' extension of the device in Germany

Mid 1800s - Babbage in England attempted to mechanize the solving of differential equations. His analytical engine involved a series of geared wheels driven by a steam engine and its operation involved:

store - holding 1000 digits

mill - which accomplished additions and subtractions

control - the ability to take information in the store, transfer it to the mill for operating purposes, and return the information to the store for further use

input - the placing of the information into the system (similar to the punched card)

output - windows through which the operator could look to see the result of the processing

Instructions to the machine - similar to today's software

Although Babbage did not develop a working model, his design was sound, and every computer today has equivalents of the basic components as conceived by Babbage, an arithmetic mechanism and a control mechanism.

1890 - Herman Hollerith developed a family of machines in connection with his work with the Census Bureau. His machines included a device for recording information (similar to a present day keypunch), a machine to classify machine-readable information in the store (card sorter), and a device that would tabulate or summarize the information that had been put into the machine. These machines were not computers; there were no instruction sets, and they had no storage. They were, however, mechanical devices or unit record equipment the equivalents of which are still available today.

1939 - Aiken developed MARK I at Harvard -- perhaps one of the first computers -- a device using electrical mechanical components.

1948 - Bell Laboratories developed the transistor; ENIAC -- an electronic calculator, using vacuum tubes, which stored information.

1950 - Sperry Rand's Univac I was the first commercially available computer; Forrester developed magnetic core storage, with the ability to represent information in a binary format. This development made it possible to use core storage extensively in computers.

To further illustrate the development of computer systems, Mr. Stanley identified the functions involved in a typical computer application, maintaining an inventory file, and explained how this application could be carried out on different types of computer systems. The inventory functions include:

Maintaining an inventory master file (storage);
Posting transactions to the file (input); and
Preparing reports based on the master file and transactions (output).

How these functions could be performed using card-oriented, tape-oriented

or disk-oriented systems was explained. Since the 1950's computer systems have developed and incorporated a variety of advances but the basic functions of the system involve:

- input - transmitting data into the system using a variety of input devices and media;
- storage - data within the system so that it can be operated upon;
- processing - manipulating the data to achieve desired results; and;
- output - presenting data in a form such that it can be understood by the user.

Early computer systems were oriented to using cards for both input and output. Information is recorded in punch cards as a series of holes commonly arranged in 80 columns having 12 rows each by means of a key punch machine which also can print the alphanumeric equivalents to the coded hole punches across the top of the card. Card systems may involve card sorters to maintain files in sequence for processing and collators to merge separate files into one file. Punch cards may be used to communicate both data and program information to the computer system. Programs are series of instructions which tell the computer what tasks to perform and in what sequence these operations are to be carried out.

Characteristics of punch-card oriented processes:

oriented to the computer's ability to read information punched on cards
hold 80 characters of information
fixed length
bulky way of storing information
file sequency (master file)
transaction file (in sequence)
batch processing (many transactions are processed at one time, i.e. in a batch)
CPU/Input-Output balance is poor in a punched card environment
Inquiry procedure is difficult
Single files can be updated; multiple files cannot
Economical

Second medium for putting information into the computer, one which is gradually replacing the punched card, is magnetic tape, which records on

reels data in alphabetic or numeric form. Information to and from that tape is recorded by a tape drive. The information storage density is expressed in terms of characters per inch (up to 6250 characters in an inch of tape). This process is much faster than the punched card method -- some 1.2 million characters can be run per second.

In the inventory example a reel of magnetic tape stores transactions; these are sorted in sequence in an inventory master file. The tape drive can input data as well as the program into the machine. Results include an old and a new inventory master file tape. The transactions are registered in hard copy.

Characteristics of magnetic tape process:

not limited to 80 characters of information
no fixed length of record except for the length of the tape (2400 feet)
ability to store 2 million characters of information on each reel
operation not limited to a batch environment
CPU/Input-Output balance superior
Inquiry still difficult
Cannot update multiple files

Direct access storage devices (discs) give one the ability to go directly to a piece of information as opposed to having to go sequentially to locate the data. Platters, stacked on top of each other, are rotated on a spindle; arms go directly to the information desired on the disc. (The access mechanism is a series of arms moving in and out. The disc pack is mounted in a disc drive.) A series of indices enable the user to go directly to the information, which does not have to be in sequence.

Characteristics of disc method:

Limitation on number of transactions but not limited by fixed record length
Not bulky
Files do not have to be in sequence
Do not have to use batch method -- transactions can be processed as they occur
Can update multiple files
Inquiries can be handled well
CPU/Input-Output balance is good -- can get information in and out of system rapidly

Strides are being made in the area of direct access. The IBM 3850 is a mass storage device capable of storing quantities of information -- 472 billion bits of data stored on cassettes of tape. The system locates and retrieves information rapidly -- something less than a second. Information can now be moved mechanically from one location to another. Current systems can retrieve information quickly from distant locations. Scanners can read information coded in magnetic ink, and there now are ways of entering information into the machine other than by keying.

The central processing involves the memory (storage), arithmetic and logic capability. In current systems chips are used to perform the functions which were performed in earlier systems by vacuum tubes and transistors. This permits the development of systems that are more reliable than in the past. Computers have been developed to meet the needs of both scientific computation and business data processing.

The scientific requirements of the computer include:

large memory for storage
limited input/output capability
fair arithmetic capability
word oriented
binary representations for data

The commercial requirements of the computer include:

smaller memory
wider range of input/output devices
faster output and input
limited arithmetic capability
alphabetic information handling capability

A range of computers was developed by IBM for both of these application areas (704 - 709 - 7070 - 7094 - machines for scientific requirements; 1401 - 1410 - 1460 - 1440 - commercial requirements).

In 1964 IBM announced its system 360 -- a single family of computers which was intended to meet the needs of both communities and enable the user to move from one type of machine to another. System 260 consisted of upward compatible series of machines capable of working with both commercial and scientific data.

The programming or instruction sets of the machines are intimately related to the machine design. Programmers may write machine language to instruct the machines to perform operations the user wants performed. Symbolic or assembly-type language is used to instruct the machine regarding the data

with which the machine deals. Typical assembly language instruction includes:

L - load
AC - accumulate
PR - print
A - add

To some degree software development has simplified the preparation of instructions making it easier to understand the programmer's output. Translator programs can translate the language used by the progammer into machine-readable language. The range of computer languages includes FORTRAN (FORmula TRANslation) and COBOL (COmmon Business Oriented Language). These programs operate under the control of an extensive operating system. An operating system is a collection of programs designed to enable the user to utilize effectively the resources available to him in the form of hardware (the machines) and software (the programming).

One of the problems systems designers have confronted has been the fact that input and output typically take longer than the processing of information in the computer, although as machines develop, time limitations decrease. Development of operating systems has reduced the amount of human intervention required. As one job is finished, the next can now come in automatically, thus providing faster "job to job" transition.

A result of this is the machine's present ability, because of multi-programming, to run more than one "job" at a time -- FORTRAN and COBOL "jobs" can be in the computer at the same time. The Operating System (OS) "keeps track of" (controls) the "jobs" being executed.

Communications in a data processing environment give users in remote locations access to the information stored in the computer. These tele-processing communications require terminals at locations away from the computer. These terminals may use keyboards, punched cards, or punched paper, and can generate magnetic tape and/or hard copies. Digital information can be converted into voice tone signals. An on-line terminal makes it possible for the user to communicate with the computer.

Questions arising from these computer advances are important in connection with studies involving copyright. What information do you allow into the systems? Do you permit the computer and the user to alter the information or just to look at the input? Who shall have access to the system? The managerial decisions that have to be made about use of the information in the system involve questions of security -- security techniques can be built into the program. Copyrighted information could be tagged so that it would be available only to those authorized to use it. Facsimile reproduction makes possible "point to point" communication.

3. Dr. Ralph Gomery, IBM Vice President and Director of Research, discussed informally with the Commissioners possible technological directions in the future. He explained that forecasts beyond about five years (the time required to develop and bring out a new computer) are necessarily very speculative.

Technological developments currently indicate that the trend of having everything become smaller and easier to manipulate in the computer will continue. As long as electronic bits are involved, the possibilities for progress are almost unlimited. The progress thus far in the logic and memory of machines is the result of miniaturization inside the computer (a small mark on a magnetized area can be sensed by an instrument), and this miniaturization is likely to increase (i.e., the marks will become smaller).

This miniaturization can lower the cost of storing the information. The transmission of the information to the user is the next step; Dr. Gomery sees now little beyond transmission over the telephone system; co-axial cable used for cable television is not yet common and is not switchable. The user is still faced with the cost of sending the information over the telephone wire. At present there is little evidence that the cost of electronic communication of a book will be reduced substantially, so that this cost continues to be a deterrent to sending technical information electronically to the home.

At the other end is the problem of creating the book. The television screen can, of course, show you a part of a page and later may be able to display a full page. Progress is slower in this area of interaction with the user.

Beyond the display, there must be the ability of the machine to print -- a printer that would print a hard copy quickly. This is costly, and a change in this area is not in the immediate forecast. The reproduction of an entire book rapidly and easily electronically is governed by the cost of telephone transmission plus the cost of the home printer.

Mr. Wedgeworth inquired about the forecast for other output devices and the effect these might have on the copyright question. Dr. Gomery did not see many immediate new developments here -- the ink jet printer is more suited to pictures than to text transmission. It may become cheaper to print on microfilm, but the cost of telephone transmission does not show signs of coming down. Through satellites, which link major locations, communication between libraries can be increased.

Mr. Hamilton referred to the increase in cable installations throughout the world. Dr. Gomery spoke of the cost of laying the cable; he did not see the cable extending to the home. Mr. Perle mentioned the need to anticipate

prospective methods for communicating ideas, by whatever means, a hundred years from now. Dr. Gomery agreed that in a hundred years transmission to the home at a much lower cost is a real possibility. The ability of machines to copy and transmit will improve considerably over the long period, and costs will decline as use of these methods accelerates. The clumsiness of copying will diminish.

Mr. Lacy stressed the significance then of the protection of data in the computer. Is the data base copyrightable? If a publisher or author places a book in the computer, can he charge users who access it? Can the users be identified? Counted? Dr. Gomery answered these questions affirmatively. However, the system can also have security arrangements built into the machines to protect the information against unauthorized use. Bank terminals, for example, require identification of users before complying with the users' requests. Better personal identification methods such as signature verification are ahead.

In response to a question about future means of keeping track of the use of data within the system, i.e., the massaging of data to produce a certain end result, Dr. Gomery said this seems workable. The computer input can include a list of persons authorized to see data at designated locations in the computer. Statistics desired about users can be provided, and the cost of providing such data will diminish. Technology now available can provide this.

Mr. Wedgeworth noted that physical control over the data base is the key to these questions of use. As these controls change, different problems emerge. Are there ways, for example, to record usage in a decentralized system? Dr. Gomery indicated that accesses in a certain area can be recorded electronically and totaled at a given time, such as on a monthly basis. However, he recognized the possibility of ingenious users finding ways of circumventing such controls.

Mr. Hersey asked about the possibilities for a scanning process that would translate any type font into computer readable form. Dr. Gomery told of the ability to do this now.

A question was asked about the ease of transferring an inkprint version to a machine-readable version, irrespective of the font used for entry. Dr. Gomery explained that in terms of font, a record can now be made in any font; he was not certain yet about programming recognition of differences in fonts.

Mr. Hamilton spoke of anticipated declines in machine consumption of energy. Dr. Gomery agreed that forecasts for the future envision considerable reductions in energy requirements -- we should be able to do many things at lower energy levels.

Mr. Nimmer asked about the possibilities for transmission by television rather than cable. Dr. Gomery said that this is a reasonable possibility. Mr. Hersey asked about the translation of voice into machine-readable language and vice versa. This is possible but difficult, Dr. Gomery explained. Work is occurring in this area. Printed materials could be transmitted by voice; there would have to be the capability of optical character recognition of the numbers and synthesization of the speech. This is possible, but the voice is really a detour. Fixed recordings now do this through the telephone line.

Mr. Dix brought up the concept of digital vs. facsimile transmission of a text. The tendency is to send digital data because of the economics, but recognition of the text will be more useful.

Mr. Levine asked about the effect of laser technology on transmission methods. Dr. Gomery indicated that progress in use of light fibers has been significant and that future possibilities are attractive.

Mr. Perle asked about possibilities for changing the ways of dealing with information. Dr. Gomery did not see anything at the moment beyond the computer.

4. Mr. Jack Garland then addressed information retrieval objectives. Initially the electronic machines were primarily number-oriented. In the later application of the equipment to words, other problems have been addressed -- the rising cost of publications and the responsibility of libraries and information centers for organizing increasing knowledge. In examining these problems, IBM has viewed texts as discreet pieces of information, with computers being used in editing and reformatting of texts and in the publishing process. In order to assist libraries in locating the information produced, programs for the creation of indices and bibliographic searches have been developed.

Thus, computer applications to words involve:

a. Creation of information
   input/edit function
   publishing function
   publication format

b. Software in the central processor to permit manipulation of this data

c. Distribution of the data
   Retrieval or the bibliographic control process

Today's state of the art shows that a number of systems exist to tackle the information creation, manipulation and retrieval problems. A large computer handling traditional data applications can accept, organize, and transmit text.

The costs involved in these processes are dropping. It is now economically and technically feasible to have smaller offshoots of a central facility, such as mini-computers. This small facility can have storage, a small amount of printer capability and an ability to enter commands to the host computer.

Progress in the period 1967-72 enabled systems to store large page markups within the central facility -- a capability being used by some publishers. There has been less progress to date in the retrieval area. However, the costs of traditional patterns for organizing information in classification systems led to a number of technological approaches: the use of descriptors (an alphabetical file on magnetic tape of terms used to list a particular document); acceptance of the original text with controls in the system to enable the user to query the system and get desired information; and an inventory file (identifying the document, paragraph, sentence and words).

In response to questions from Ms. Karpatkin, Mr. Nimmer, Mr. Levine, and others, Mr. Garland told of the use of some of these applications in government and in the private sector, including application in legal activities. The computer has demonstrated in these applications that it can contribute speed, accuracy, and flexibility to the retrieval process. The West Publishing Company, for example, has offered terminal-based access to its digest. The retrieval process would involve such dialogue from the computer to the user as:

> What data base would you like to search? (select a or b)
>
> Please state the words or phrases you want searched
>
> The words and phrases you asked for will provide (a specific number of) documents
>
> et cetera

The West system incorporates key names with the record -- access can be through the key names as well as through words and phrases. Costs for such systems come down as more terminals enter the system.

Another example, the Mead system, has a browsing capability -- windows of text can be seen near the words identified by the user -- a mechanical book so to speak. As we move ahead more and more full text systems will become available. It is no longer difficult to handle natural language. As systems proliferate and costs go down, there will undoubtedly be larger and larger networks with incresingly large data bases. IBM uses operational systems

of this c ·r to supply its branches. For instance, data relating to all of IBM's manuals are stored in and serviced by an on-line facility which enables branches to get data needed in 30 minutes instead of the former 4 hours. The result is an increase in productivity.

Copyrights can be protected in several ways -- technical apparatus which prevents a user from searching a particular data base; signs controlling access; counting of uses. Photocopying problems can be involved when the mini-computer can bleed off a bibliography and print it as though it came out of its store without ever accessing the basic data base again. The host computer could make divisions in regard to such duplication.

5. The Commission toured the IBM computer facility and observed on-line real-time operations and a variety of equipment, including the store (memory), disc storage, printer, card readers and punch machines, magnetic tape units, direct access devices, terminals.

6. After adjournment at IBM, Commission members attended the Jean Geiringer Memorial Lecture on International Copyright, sponsored by the Copyright Society of the United States and by New York University at the Tishman Auditorium of the University. The address was given by David Catterns, Legal Research Officer, Australian Copyright Council, who spoke on the Australian case involving the photocopying of the book "The Americans, Baby". (This was a test case against a university of the use of a photocopying machine in the library of the university to make a copy of a copyrighted literary work. The High Court of Australia held in this case that "the University did not adopt measures reasonably sufficient for the purpose of preventing infringements taking place ...").

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7. The next session was called to order by Judge Fuld at the Association of the Bar of the City of New York, 42 West 44th Street.

8. Mr. Levine reported that Mr. Frase, Assistant Executive Director, would attend a meeting in Europe in January of the International Standards Organization (which will pay his transportation); during his trip he will be conferring with a number of persons dealing with problems of concern to the Commission. Suggestions of additional persons to contact may be given to him.

9. Judge Fuld then introduced Mr. Catterns, who spoke further on the Australian copyright case involving photocopying and answered questions about it.

The specific question addressed by the case was an issue of authorization -- whether or not a library is responsible for what takes place on self-service copiers.

Mr. Catterns explained that "the court in the Moorhouse case decided that the university in that case did have a responsbility for what took place on self-service copiers in its library. If an infringement takes place by a library, the university is responsible. The reason we did that is not so that we can force librarians to supervise what copying takes place although that has been the result in the short-term. We have had to institute studies for a system of signing declarations, identifying persons, giving indemnity to a university for whatever copying is done. Trial of these procedures has caused some chaos -- students have objected to long lines, much waiting, et cetera. But the universities are now prepared to look at practical ways of trying to solve the problem."

Mr. Catterns did not view the concept of fair use as having any relevance to reprography or computer uses. If the principle is accepted that authors and publishers ought to be paid for uses of their works, then a much better system is needed. Mr. Catterns believed in free flow of information, but not without charge. The user should be able to copy what he needs, but the author and publisher should be paid for each use. Mr. Catterns indicated that it is incumbent upon authors and publishers to show that they can arrange for this payment.

In outlining ideas advanced in Australia for identifying copyrighted material, based on an IBM scheme, Mr. Catterns spoke about machine-readable identifying codes as in journals and books; machine-readable cards on which users can indicate the work copied, number of pages, and number of copies made; the creation by machine of a log of copying done; the development of a list of journals, books, publishers, and authors with indication of the royalties that need to be paid. A system of charges could then be built into the computer, which would compare the records of copying with the published list and supply the amount to be paid. Procedures were outlined for building a list of publishers and authors and storage of the list in the computer. The list would give such identifying data as the International Standard Book Number (ISBN), International Standard Serial Number (ISSN), LC catalog card number, etc. Estimated costs were 1 cent per item copied. There are problems, but Mr. Catterns did not consider them to be "insurmountable", though they may be easier to solve in five years. Many of the techniques used by music publishers may be appropriate here.

Among the problems to be solved are the need to record and identify works uniquely (when there is no book number, the author and publisher can be keyed into the machine), the problem of accuracy (cannot check every entry, so some levels of inaccuracy will have to be accepted), the need to train users in the use of the forms. Mr. Catterns mentioned that a copyright law committee on reprographic reproduction has been set

up in Australia, following the decision in this case; it will address questions concerning library photocopying and school reprography. Its report expected in 1976 may be of some interest to this Commission.

Mr. Catterns suggested that the Commission will need hard evidence as to what actually is occurring -- what percentage of books now have International Standard Book Numbers and ISSNs; in five years how many books and journals will have these. Australia has had difficulty getting these facts, but they are needed in order to plan for the future.

Questions followed from the Commissioners. Mr. Wedgeworth asked about how the test case developed (Mr. Catterns explained that it was arranged for a graduate student to copy a friend's work twice so that it would constitute an infringement). Mr. Lacy asked about libraries' participation in any control plan to prevent charges of infringement (Mr. Catterns indicated that an agreement on some rules of "fair dealing" will have to be reached with the universities; there may have to be acceptance of a lower rate of payment "because a lot of the copying libraries do is presumably free"). Mr. Dix indicated disagreement with some of the views expressed and asked whether the Australian decision places the same responsibility on the owner of a commercial copying service as upon a university (Mr. Catterns replied that "it will be harder to sustain a case against a commercial photocopier"). Mr. Nimmer inquired about ASCAP's procedures (holders of performance rights take flat payments from those who play cassettes). Mr. Dix pointed out possible weaknesses if one is collecting a payment that is not legally required in such cases as fair use (Mr. Catterns thought eventually fair use should be abandoned; Mr. Levine added that the plan apparently presupposes amendment of the copyright law to eliminate fair use or fair dealing entirely). Mr. Nimmer asked about the control of filing of cards (this will depend upon student good will; a number of checks can be built into the system; student support is anticipated).

Mr. Catterns spoke of the experiment that will be conducted in univesities beginning in March 1976. Mr. Nimmer discussed costs, and Mr. Hersey asked about the fee to the user (Mr. Catterns hopes it could be set at a cent a page to start). Mr. Catterns added that corporations with libraries could follow a comparable system, involving blanket or compulsory licenses. Mrs. Wilcox asked about the assignment of responsibility to control the money (the institution would send the check); Mrs. Wilcox was uneasy about some of the examples and she explained that the indentification of what is copied is not as simple as some of the ideas advanced might indicate. Mr. Catterns said that the Australian plan is based on the assumption that "it is the responsbility of the institution to take care of all of this identifying. We don't want the librarians to be responsible for the accuracy of recording. We want the librarian to make sure that the cards are beside the machine and are collected. But we would ask them to be responsible for the copying they do."

Mr. Miller brought up the possible problem of the error rate in transcription by the student making the copy and filling in the card. He also was concerned about where decisions would be made on what is copyrightable or not (editions of foreign works, for instance). He felt academic libraries should not have a greater burden then corporations.

In discussing costs, it was mentioned that each step is an additional cost -- supervision of the machines, physical handling of the card, writing of the check. Perhaps the relationship of one cent a page to the actual cost needs study. Mr. Catterns said there would be further study about costs, although the Australian scheme depends on the free labor of the person wanting to make the copy. As to what is copyrightable, he indicated that some 90 percent of the material will be in copyright.

Mr. Wedgeworth remarked that some of these plans indicate a not-too-subtle coercion of libraries. One approach by the librarians might be to remove all copying machines. Mr. Catterns thought that such action would bring about a student rebellion. Mr. Wedgeworth pointed out that although fair use is difficult to define, that does not seem to be justification for discarding it. Mr. Catterns advocated a "black and white" solution rather than a "subtle answer". Judge Fuld commented that authors and publishers would undoubtedly agree.

Mr. Nimmer listed three considerations:

a. due process -- are the tactics proper or improper?
(The Commission does not need to pursue this question.)

b. fair use itself -- what should be regarded as fair use?
(This too need not be considered here in detail.)

c. economic and pragmatic considerations to the librarians
(The Australian experience may be helpful here if it is not an economic hardship to librarians).

Mr. Nimmer asked for information about the percentage of material photocopied that is covered by numbers (suppose it should turn out that 90 percent of the material photocopied is recent material and 95 percent of that 90 percent has an identifying number; would the publishers and authors be willing to say they would not attempt to get payment on copying of unnumbered books. Mr. Catterns did not know the percentages but expected to have such answers later. He didn't know what the answer would be in such a circumstance).

Mr. Levine mentioned administrative costs involved in collecting and disbursing fees. Mr. Catterns said the Australian copyright council has planned for a study of costs. He did not know what administrative costs would be involved in establishing the list. Computer costs are not expected

to be too high. A publisher might pay a flat fee to put a certain number of titles on the list. Or a grant might be secured to finance the compilation of the initial list.

In response to more questions about how the one per cent per page charge was determined, Mr. Catterns said that the definite amount "should be subject to jurisdiction of a copyright tribunal which supervises the negotiations between those who produce information and those who use it." He again drew a corollary between book copying and performing arts. Some sort of judicial or legislative control will be required.

Mr. Wedgeworth mentioned the ARL study on the feasibility of a transaction system for controlling library loans -- the cost came to several dollars per transaction.

Judge Fuld thanked Mr. Catterns for this thought-provoking presentation.

10. Joshua Smith, Executive Director of the American Society for Information Science, explained, at the request of Mr. Levine, some of the specialties in his group that might provide helpful background knowledge for the Commissioners. ASIS might "provide a frame of reference for the benefit of the Commission and pull together the information professionals who could discuss key issues with the Commission."

There was mention of the possibility of having the February 12-13 meetings at a convention center (such as Airlie House) where an isolated location could permit concentrated attention to a variety of subjects -- ASIS could arrange for presentations by several experts in various special areas of concern to the Commission. For example, the Commission will be concerned with such topics as: the relationship of the present status of technology and information to the current and future processing of information, with an indication of probable directions; application of computers to the editorial process; management of information, status of micrographic art and its interface with publishing and copying; relationship of publishing today with machine sysems and the possible future impact. The program of such a meeting would focus on the specific needs of the Commission. ASIS could bring resource people to address the Commission in areas of interest to the Commission.

Mr. Wedgeworth mentioned that such a seminar might address the general question of the many effects of technology on information handling and that the subjects covered should impinge directly on the Commissioners' concerns.

Mr. Miller supported this view; the IBM presentation was well done but it was naturally limited to that one system. The Commissioners would benefit from exposure to a number of existing systems to the degree to

which copyrighted works are in the system in order to get some feeling of what the future situation may be. The ASIS presentation might be augmented by presentations on Educom, the Mead system, and the West system, for example.

Mr. Levine suggested that if a planning committee is named, it could work out an intensive 2-day meeting with Mr. Smith, who would be able to identify specialists who could develop a dialogue with the Commissioners. Mr. Lacy thought an intensive 2-1/2 days' session would be useful but we should be certain that it is really comprehensive. It should include some representation by one of the library networks, so that practical operational problems can be discussed as well as economic problems. The rather limited budget probably would not support more than one such 2-day meeting of this kind, so we should insist that it be comprehensive. Participants at such a meeting should not come to argue for a particular position. Mr. Dix added that what is really needed is background on the flow and distribution of information in this country from creator to consumer. Some assistance might be found in long-range studies sponsored by the American Council of Learned Societies. He agreed with others that the briefings should go beyond the technology. Mr. Smith understood that the Commission wants a broad education session. Judge Fuld thanked Mr. Smith for his offer and indicated that this possibility would be considered.

11. Future Meetings. Mr. Levine referred meeting dates ahead: Thursday and Friday, February 12 and 13 (these dates should be retained on calendars although a variety of other February dates may be offered); Thursday and Friday, April 1 and 2, have been scheduled for a Commission meeting; Mr. Levine will work on plans for a May meeting. It was suggested that he might lay out a meeting schedule for the year.

12. Planning Committee. The Chairman introduced for the consideration of the Commission the proposal that a planning group be organized to work with the Executive Director in planning for the remainder of the year. Judge Fuld saw advantages to this idea, which should facilitate the Commission's work. Mr. Nimmer supported the suggestion and indicated that the planning committee's assignment should be to formulate a proposed program that would then be presented to the full Commission for approval.

Since there was no objection, Judge Fuld named the following persons to serve as the Planning Committee: Ms. Ringer, Messrs. Lacy, Nimmer, and Wedgeworth, with the Chairman as an ex officio member.

Mr. Lacy suggested that the Commission entrust to the Chairman the responsibility of giving final approval of plans for the February meeting. He suggested further that the Planning Committee might want to determine what studies should be initiated for the Commission and that it circulate its recommendations to Commission members and that if decisions are needed before the February meeting, the Chairman and the Planning

Committee be authorized to make them. There was no objection to this suggestion. Mr. Levine indicated that he would be in touch with ASIS later about a future briefing session; he will arrange for interested Commissioners to have access to a 3-hour videotape of a copyright seminar in Boston held as part of the ASIS annual meeting.

As the Commission adjourned for luncheon at the Harvard Club, Mr. Dix recalled an historic meeting in this building in the early 1950's when publishers, authors, and librarians met on the subject of intellectual

13. In the afternoon session Robert Frase reported statistics on the size and markets of the various industries with which the Commission is concerned. He explained that the statistics available vary -- those for the book publishing are the most comprehensive although in some areas, such as publication of law books, statistics are fewer.

The annual statistical survey of the Association of American Publishers indicates that in 1974 total sales amounted to 3-1/2 billion dollars, including exports (6-8 percent). Book-publishing comprises a number of sub-industries, the markets of which differ in economic structure, as indicated by the following 1974 statistics:

General or trade books (including adult and juvenile books)	1/2 billion dollars
Professional and technical publishing, including medicine	500 million dollars
Religion	283 million dollars
Mail order books	250 million dollars
Mass market paperbacks	300 million dollars
University press publications	50 million dollars
Elementary and secondary textbooks	600 million dollars
College textbooks	450 million dollars
Encyclopedias	300 million dollars

Because book wholesalers enter into the picture, it is difficult to trace the distribution pattern; of total book sales 18 percent are to retail stores, including general and college bookstores; 24 percent to wholesalers; 11 percent to libraries and other institutions; and 42 percent direct to consumers, including book clubs.

According to the annual statistics of Publishers' Weekly (based on Library of Congress acquisition and cataloging statistics), 40,000 titles were produced in 1974, 30,000 of which were new books and 10,000 revised editions of older works. Some 300,000 titles are in print.

There are two major publishing organizations in the industry -- the Association of American Book Publishers (about 260 members estimated to sell about 80 percent of the U. S. annual production. Some periodical publishers are included but not a high proportion) -- and the Association of American University Presses -- 65 members in U. S. and Canada, including 38 which publish periodicals (about 250 periodicals); total sales about 46 million; 2,700 new titles annually; about 75 percent of sales are to domestic and foreign libraries.

As for the periodical industry, data are not as available. A census of manufacturers indicated some 1972 statistics -- some 9,000 periodical titles published in the U. S. for which economic data are collected (there are many more, including weeklies and monthly issuances, general interest periodicals of large circulation as well as technical journals of more limited circulation).

One indication of the area in which photocopyng is concentrated is the activity of the Institute of Scientific Information in Philadelphia, an abstracting-indexing commercial firm which covers about 5,000 scientific journals, 20 percent of which are foreign journals.

In response to Judge Fuld's inquiry as to the use of these statistics to the Commission, Mr. Frase indicated they provide general background on the magnitude of the industries with which the Commission is concerned. Judge Fuld asked whether this data would have a bearing on the loss that might be suffered by publishers; Mr. Frase doubted that it would have a direct bearing.

Turning to organizations in the periodical field, the Magazine Publishers' Association has some 135 members who publish a total of 465 periodicals. These include large circulation, popular periodicals; estimated sales cover about 80 percent of total periodicals sold. The American Business Press Association has 100 members, including 500 specialized periodicals.

Smaller industries include the music publishers -- annual sheet music sales amount to between 185 and 200 million dollars. The National Music Publishers Association of America has 94 members and involves 200 subsidiary companies; the Music Publishers Association of the United States has 50 members.

The annual output of the members of the Information Industries Association has been estimated by the Executive Director of the Information Industries Association at about 1 billion dollars, but this is probably high. This comprises a variety of materials varying in format, including material in the public domain.

Moving on to libraries, Mr. Frase supplied data for five major types:

Federal - 2,145 libraries; 192 million dollars annual operating expenditures; annual acquisitions, 39 million dollars (1972 data)

Academic - 2,900 libraries; 909 million dollars annual operating expenditures; 306 million dollars for acquistions (1974 data)

Public - 8,300, including branches; annual operating expenditures, 1 billion, 113 million dollars; acquisitions expenditures, 178 million (1974 data)

Elementary and secondary school libraries and media centers - 74,000; annual operating expenditures, 1 billion, 182 million dollars; 272 million for acquisitions (1974 data)

Special (business firms, association libraries) - no adequate data; the Fry study indicated 6,394 special libraries, including Federal

Interlibrary loan (including photocopies) in public libraries - 2,400,000 loans and 3,000,000 borrowings in 1974. Public libraries lean heavily on academic libraries for material.

The American Library Association has 35,000 members, including 5,000 institutional members, foreign and domestic. The Association of Research Libraries has 101 members, all but 11 or 12 being academic librarians. The Special Libraries' Association has 8,600 individual and institutional members.

Smaller professional groups include the American Association of Law Librarians (1,400 members), the Association of American Library Schools, the Catholic Library Association, Medical Library Association, Music Librarians' Association, American Society for Information Science (3,300 members).

Authors' groups include the Authors' Guild (about 4,300 members) and the Dramatists' Guild (2,500 members). Data in regard to authors are scarce and there is a wide variety of authors -- textbook writers, free-lance authors, authors of journal articles, etc. An analysis of free-lance writers' income in a University of Illinois study, in cooperation with the Authors' League in the 1950's, indicated a dismal level of earnings. A similar conclusion is evident in a more recent study in Great Britain.

The 1974 Annual Report of the Library of Congress indicates that the Library then had available in machine-readable form over 450,000 records for English and French-language monographs and Cataloging-in-Publication book titles, 18,000 for films, 7,500 for serials, and 26,000 for maps. In 1974 copyright registrations totaled 373,000. These included 104,806 books, 92,224 periodicals, 104,511 musical compositions, 1,549 maps, 1,409 photographs, 4,716 prints and pictorial illustrations, 3,062 motion pictures and photoplays, and 9,362 sound recordings. (These figures were added in response to a question regarding copyright deposits).

Mr. Sarbin mentioned newsletters; it would be useful to hear from people in this area. What are the costs for having newsletter material listed by anyone using it? Subsidiaries of corporations receive Xerox copies of newsletters, and further reproductions are made by the subsidiaries.

The Institute of Scientific Information sells authorized photocopies and tear sheets of articles in about 5,000 journals. ISI pays 10 percent royalty to the publisher on the price it gets for the article ($3.00). Thus, it pays 30 cents for each tear sheet and each photocopy. Its volume of business is not large -- about 2,000 articles a week or 100,000 a year. The principal customers are libraries and business firms. IBM is the largest customer. ISI provides rapid (24-hour) service.

14. The Commission was then adjourned by Judge Fuld, who asked the Planning Committee to remain for a brief session.

Marlene Morrisey
Executive Assistant to the Librarian
The Library of Congress
January 13, 1976